

REMARKS

This is in response to the Office Action that was mailed on November 8, 2005. Claim 12 is amended to specify that rhodium and platinum are present in the inner layer as an admixture. This feature is based upon such disclosure as that appearing in the paragraph which starts in line 15 on page 20 of the specification (“... a slurry is prepared that mainly consists of rhodium and platinum ... . Then, the cordierite carrier 11 is immersed in the slurry, dried, and calcined to form the inner layer 12’a that mainly contains rhodium and platinum on the surface of the cordierite carrier 11”). A person skilled in the art as described by the Examiner in the paragraph bridging pages 2-3 of the Office Action would have no difficulty in seeing that rhodium and platinum deposited from a slurry would be present as an admixture. No new matter is introduced by this Amendment. Entry of this Amendment – in order to place the application into condition for allowance or into better condition for appeal – is respectfully solicited. Claims 12-15 are pending in the application.

THE INVENTION. The present invention provides a three-way catalyst for an exhaust path of an internal combustion engine operable with *both* a theoretical air-fuel ratio and a lean air-fuel ratio. With such a catalyst, it is necessary to have sufficient hydrocarbon purifying performance for a lean air-fuel ratio as well as for normal (theoretical) air-fuel ratio. The three-way catalyst of the present invention is significantly superior in this respect to the Takahata catalysts discussed below. The three-way catalysts disclosed in Takahata are only for purifying hydrocarbons exhausted at engine start-up by means of secondary air. They cannot improve hydrocarbon purifying performance during a lean air-fuel ratio operation, or during a theoretical air-fuel ratio operation and a transition from a lean air-fuel ratio to a theoretical air-fuel ratio, as can the three-way catalysts of the present invention.

Claims 12-15 were rejected under 35 U.S.C. §103(a) as being unpatentable over EP 915,244 (Kaneko) in view of US 5,376,610 (Takahata). Office Action, pages 3-4. Claims 12-15 were rejected under 35 U.S.C. §103(a) as being unpatentable over US 6,463,734 B1 (Tamura) in

view of Kaneko and Takahata. Office Action, pages 4-5. Claims 12-15 were rejected on the ground of obviousness-type double patenting over claim 1 of Tamura in view of Kaneko and Takahata. The rejections are not believed to apply to the claims as amended.

The Examiner concedes that the primary references – Kaneko and Tamura – do not teach the details of the layers in the three-way catalyst used in the Kaneko or Tamura apparatuses. The Examiner had argued, however, that the Takahata reference suggests the three-way catalyst of claims 12-15. Concerning the catalyst layer containing both rhodium and a noble metal, Takahata teaches as follows:

In the first catalyst layer, there can be used, as the catalyst metal other than Rh, a noble metal such as Pt, Pd or the like as necessary. However, since Rh easily forms an alloy with Pt or Pd, causing catalyst deactivation, Rh and Pt or Pd are preferably arranged separated from each other. For example, Rh and Pt are loaded on respective substrates and then arranged in the form of a mixed catalyst layer; or a substrate containing Rh and a substrate containing Pt are arranged in layers.

Column 4, lines 36-44.


In contrast, as taught for instance on page 20 of the present specification, Applicants do not separate rhodium and platinum in the catalyst layer in which they both are present. Applicants do not, for instance, need to load them onto separate substrates. Instead, as an example of a way to implement the present invention, “a slurry is prepared that mainly consists of rhodium and platinum .... Then, the cordierite carrier 11 is immersed in the slurry, dried, and calcined to form the inner layer 12’a that mainly contains rhodium and platinum on the surface of the cordierite carrier 11”.

Clearly, Takahata fails to teach or suggest any three-way catalyst that has the same structure as the three-way catalysts of the present invention. Since the three-way catalysts of the present invention are, as discussed above, significantly different from those of Takahata, a construction equivalent to that of the present invention cannot be obtained by following the combined teachings of the prior art. Even if the three-way catalyst of Takahata is combined with the exhaust apparatus disclosed in EP 915,244 or in Tamura, the combination will not provide the functions and effects of the present invention.

The Examiner is respectfully requested to withdraw all rejections and objections of record, and to pass this application to Issue. Should there be any questions, the Examiner is respectfully requested to telephone Richard Gallagher (Reg. No. 28,781) at (703) 205-8008.

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Respectfully submitted,

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